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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/576,387
Filing Date: April 19, 2006
Appellant(s): SPECTOR ET AL.

James Lake
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5 August 2009 appealing from the Office action mailed 13 March 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

GB 1086753 10-1967

Diamond, Arthur S & David Weiss (eds.) Handbook of Imaging Materials, 2nd ed.. New York: Marcel-Dekker, Inc. (11/2001) pp. 242-247 & 254-257.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4, 6-19 and 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1,086,753 in view of *Handbook of Imaging Materials* to Diamond, pp. 242-247 & 254-257.

The GB document discloses in Example 1 a process of forming a liquid developer concentrate by dissolving an aluminum tristearate salt (note spec. p. 4, l. 10 & 11 where this compound is disclosed as a charge adjuvant; also dependent claims 8 and 9) in odorless mineral spirits (i.e., a mixture of paraffin hydrocarbons functioning as a carrier liquid), then adding toner particles, and ball-milling the mixture, which is a mixing and grinding process. Further dilution with additional mineral spirits forms a liquid developer. The toner particles comprise a mixture of dye, wax, and resin. Additionally, the Examiner notes that the amine added in the disclosure on GB page 1 also appears to be a charge director and this component is added to the toner particles. The reference does not specifically disclose that the resin is a thermoplastic resin and does not disclose the addition of a charge director as the last step of the process, although the claims are not so limited. The GB reference also does not specify heating

of the aluminum stearate in the liquid carrier to form the solution. However, the GB reference does states that the additives should be in solution at the temperature of the apparatus used for development (p. 1, l. 68-74), as well as in solution in the example when the aluminum stearate is added to the liquid (p. 3, l. 3-5). The other examples in the GB document are also pertinent to the claims.

The instant specification states, "The use of aluminum stearates as charge adjuvants is widely described in the literature. These materials are generally solid at room temperature and not soluble to any great extent in the carrier liquid used in the toner at room temperature." See specification page 1, lines 28-30.

Diamond teaches that conventional liquid developers contain resins such as polyethylene, polypropylene, polystyrene, poly(meth)acrylates, ethylene-(meth)acrylic acids (i.e., Nucrel Resins), and ionomers of ethylene-(meth)acrylic acids (i..e., Surlyn Resins) as effective resins for the toner particles in liquid developers. Nucrel resins are specifically used in the specification (see p. 7, l. 1) as thermoplastic resins (note these resins also disclosed in Diamond p. 243-4). Diamond also teaches that charge directors are conventionally added to toners to ensure proper charge on the toner particles (p. 244). Diamond also teaches that milling of the toner particles to obtain an effective particle size is conventional in the art and serves to "grind" the particles (p. 246). Diamond also discloses surfactants as effective additives to the liquid composition (p. 255).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known and conventional resin, such as ethylene-(meth)acrylic acid (i.e., Nucrel) as the resin in the GB document's toner particles because Diamond teaches that the ethylene-(meth)acrylic acids are conventionally used in liquid toners to serve as the vehicle for the colorant and to fix the image to the final receiver, which is conducted in the GB

document's examples. The use of a known material for its known function when that function is called for by a reference would have been *prima facie* obvious to the skilled artisan, particularly when that material is conventional in the art as shown by Diamond. It would also have been obvious to add a charge director to the GB document's liquid toner because Diamond teaches that charge directors are conventionally added to liquid developers to ensure proper charge on the toner particles in a liquid developer. It would also have been obvious to heat the mixture of the aluminum stearate and toner particles in order to ensure dissolution of the stearate in the mineral spirits because heating of a liquid to enhance solubility of a solid component is ubiquitous and common knowledge in the chemical arts and would have been an obvious expedient to the artisan the ensure the dissolved state of the salt as desired by the reference. The artisan would expect that heating would soften the resin, particularly because the toner resins are designed to soften or melt during the fixing process. The order of the steps as disclosed by the GB and Diamond references would have been obvious to the artisan to vary in order to produce an effective liquid developer.

(10) Response to Argument

Appellant traverses the prior art rejection of record on four main reasons (see Brief pp. 7-15). The Examiner will address each reason for traversal in the order presented by Appellant.

On Brief page 7, Appellant takes the position that there is no suggestion of dissolving a solid charge adjuvant in a carrier liquid before mixing with resin and grinding to form toner particles. In the discussion of this reason for traversal Appellant takes the position there is not sufficient evidence to believe the aluminum tristearate in the GB document is a charge adjuvant

and that based on Diamond the artisan would expect the compound to be a charge director.

As noted above in the rejection, the GB document includes a step of dissolving aluminum tristearate in solution in the liquid developer. A review of the instant specification shows that charge adjuvants in general and aluminum tristearate in particularly are well known in the art. As discussed on specification page 1, lines 17-19, "A charge director is also added to the dispersion to induce charge on the particles. As known in the art, a charge adjuvant may be added to increase the charging effect of the charge director." Further, as discussed on page 1, lines 28-30, "The use of aluminum stearates as charge adjuvants is widely described in the literature. These materials are generally solid at room temperature and not soluble to any great extent in the carrier liquid used in the toner at room temperature."

It is readily apparent from the specification disclosure that aluminum tristearate is a charge adjuvant. The fact that the GB document and Diamond do not specifically use the term "charge adjuvant" to describe the aluminum tristearate is not controlling because the GB document does use aluminum tristearate in its preparation example of a liquid developer, and the specification admits this compound is a charge adjuvant in liquid developers. Based on these admissions it is readily apparent that the person of ordinary skill in the art would recognize aluminum tristearate as a charge adjuvant as required by the claims. The Examiner recognizes that aluminum tristearate may have more than one function in the liquid developer art – as a charge adjuvant (see specification admission) and as a charge director (see Diamond). However, the same compound is disclosed in the GB document as is acknowledged in the instant specification as a charge adjuvant. The GB document meets the requirements of the instant process of disclosing a solid charge adjuvant, which is dissolved in the carrier liquid before mixing with toner resin particles.

Appellant also states that the Examiner has not provided substantial evidence that one of skill in the art would understand the aluminum tristearate in the GB document to be a charge adjuvant. The Examiner disagrees with this position because the Examiner has provided evidence that the GB document discloses a charge adjuvant in the process of making a liquid developer. This evidence comes from the admissions in the specification discussed above. The same compound, aluminum tristearate, is disclosed by both the GB document and the instant specification. The instant specification discloses aluminum tristearate as a charge adjuvant. “Products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties Appellant discloses and/or claims are necessarily present. *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). There is ample reason to believe the aluminum tristearate is a charge adjuvant for these reasons.

A second reason for traversal is that there is no reasonable expectation of success in modifying the GB document (see Brief p. 10). Appellant notes that charging is a complex process with many theories of how materials function. The GB document "merely lists compounds without describing their function" and that there is no reasonable expectation to make aluminum tristearate function as a charge adjuvant rather than a charge director.

The Examiner has never proposed that one of skill in the art would have to modify the teachings of the GB document to have aluminum tristearate function as a charge adjuvant rather than a charge director. The instant claims require dissolving a solid charge adjuvant in a carrier liquid. Aluminum tristearate is a charge adjuvant that is solid at room temperature (see spec. p. 1, l. 28-30). The GB document dissolves aluminum tristearate in a carrier liquid. No modification is proposed in the rejection. It appears Appellant is proposing a different rejection

or rationale for combination than has been presented by the Examiner. This is not an effective ground of traversal because it is incumbent on Appellant to address the rejection presented by the Examiner, not some other rejection of their own choosing.

Appellant criticizes the GB document as being "so rudimentary" with regard to the function of the additives as to not provide a reasonable expectation of success to produce a liquid developer having a dissolved charge adjuvant. This proposition ignores not only the fact that aluminum tristearate is dissolved in a carrier liquid in the GB document as part of the process of making a liquid developer, but it also ignores the substantial knowledge in the liquid developer art as evidenced by the applied art (i.e., the GB document and Diamond), as well as that knowledge recognized in the specification discussion of prior work in the field of endeavour. It also ignores the high level of skill in the art as evidenced by the applied art. It is not necessary for the art to identify the function of a component for the artisan to be able to use the material in the manner of the art. The GB document discloses a process of making a liquid developer by dissolving aluminum stearate in a carrier liquid as one of the steps. There is nothing in this step that is beyond the knowledge and capabilities of a worker in the relevant art.

The third reason for traversal is that there is no suggestion of dissolving a solid charge adjuvant by heating the carrier liquid before mixing with resin. As noted above, the GB document discloses a process of making a liquid developer concentrate by dissolving an aluminum tristearate salt in odorless mineral spirits (i.e., a mixture of paraffin hydrocarbons functioning as a carrier liquid), then adding toner (i.e., resin) particles, and ball-milling the mixture, which is a mixing and grinding process. Appellant is correct that the GB document does not provide evidence of how the aluminum stearate is dissolved, but it is clear that the material must be dissolved. The artisan would experiment with those steps and conditions

known to have the desired effect, and dissolving by heating is extremely well known to dissolve a solid in a liquid. Stating that common knowledge of heating to enhance solubility does not address asserted deficiencies of the combination of references, as Appellant does in the traversal, ignores one of the most basic principles of chemistry: Heating a solid in a liquid increases the solubility of solid in the liquid. This knowledge is not only in the possession of one of ordinary skill in the art but would be in the possession of anyone taking high school chemistry. The GB document teaches dissolving the aluminum tristearate in a carrier liquid. The artisan is expected to have some knowledge apart from that specifically presented in the applied art, such as that knowledge coming from fundamental chemistry courses. Heating of the carrier liquid to ensure dissolving of the aluminum stearate is well within that knowledge possessed by those of skill in the art and would have been obvious to the artisan.

The final reason for traversal is that there is a showing of unexpected results for the claimed invention. Appellant notes specification evidence where the charge adjuvant is not first dissolved (Brief p. 14) and that the results are not satisfactory. This is not an effective comparative example because the applied GB document does dissolve aluminum tristearate in a carrier liquid. Comparisons must be with those inventions at least as close as the applied art. The specification comparatives are clearly not as close to the applied art as required for a showing of unexpected results because it does not have the aluminum stearate dissolved in the carrier liquid.

Appellant also traverses the rejection over pending claim 2 because the applied art does not disclose heating to plasticize the resin, followed by cooling the resin, and then adding the dissolved charge adjuvant. In the GB reference example, liquid developer must have its

components well dispersed in the carrier liquid to develop an electrostatic latent image with sufficient detail (see Background of the Invention, p. 1, l. 6-13). Diamond also recognizes that the toner materials must be well dispersed by milling (§ 7.4) to form fine particles (§ 7.5). The GB document specifically states that small particles are desired (p. 1, l. 33-35 & 55-57). A process of heating the thermoplastic resin in the carrier liquid so that the resin can be milled into fine particles when softened (i.e., plasticized) would have been obvious to the skilled artisan to obtain the fine particles taught as effective.

Appellant also specifically traverse the rejection over claim 3 because it is not known to dissolve a charge adjuvant in a carrier liquid. The Examiner cannot agree with this position because GB Example 1 discloses a process of forming a liquid developer concentrate by dissolving an aluminum tristearate salt. As noted above, heating to dissolve would have been obvious because heating of a liquid to enhance solubility of a solid component is ubiquitous and common knowledge in the chemical arts.

Claims 16-18, similarly, remain obvious to one of ordinary skill at the time the invention was made because heating of a solid material is known to enhance its solubility in a given liquid.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Christopher RoDee/

Primary Examiner, Art Unit 1795

6 January 2010

Conferees:

/Mark F. Huff/

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